

# Defining and Advancing Citizen Science: What Scientists Want

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# Washington Biodiversity Conservation Strategy



Sustaining our Natural Heritage  
for Future Generations

NOVEMBER 2007

WASHINGTON  
BIODIVERSITY COUNCIL  
CONSERVATION | EDUCATION | STEWARDSHIP

- **Strengthen available science** and information
- Comprehensive, up-to-date, action-oriented data
- **Educate and engage** the public
- Promote **active citizen stewardship**



# Others Agree...

US Commission on Ocean Policy  
Pew Oceans Commission  
Puget Sound Partnership



- Strengthen science and generate **high quality, accessible information** to inform decision makers
- Decisions should be founded upon the **best available science**
- Inspire a **stewardship ethic** among citizens
- Broaden **education and awareness**
- **Educate and engage** the public

# What can we do?

## *Get citizens involved!*

- Data collection
  - **Rigorous citizen science** programs can generate high-quality data that simply could not be collected by paid personnel
- Education / Outreach
  - Data collected by citizens can better **inform decision makers** of trends and threats
  - Informed and involved citizens will **take action** on behalf of the coastal environment

### Strategy 5.3:

**Use expanded citizen science networks to engage people in conservation and to inventory and monitor biodiversity.**



# So What Is Citizen Science?

BAY AREA ANT SURVEY



WSU BEACH WATCHERS  
Informed. Engaged. Passionate.

Frogwatch USA™  
-Home

Help scientists conserve frogs and toads  
in twenty minutes a week!



BirdTrack

Recording birds across Britain and Ireland

Taking part

Latest results

About bird recording

Recording year

Partner websites



The Kansas Biological Survey, University of Kansas



Monarch  
Watch

Dedicated to Education, Conservation, & Research

eBird

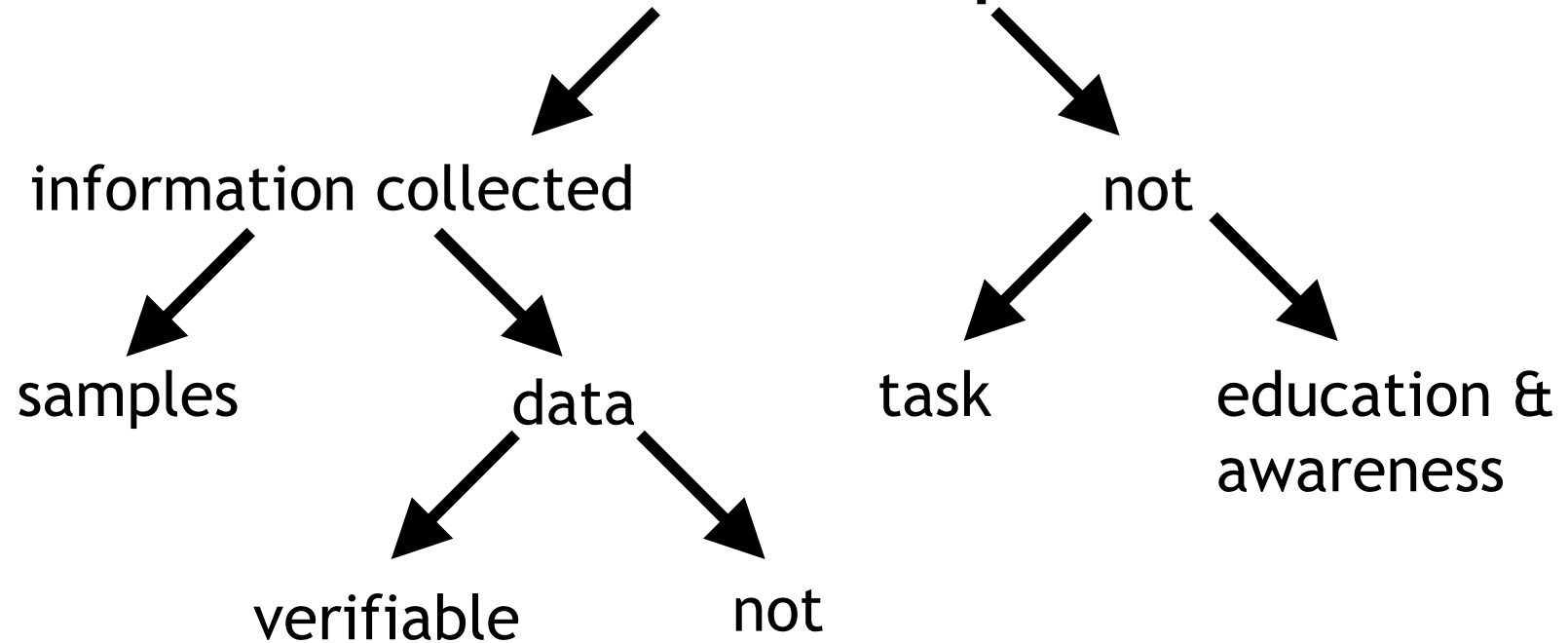


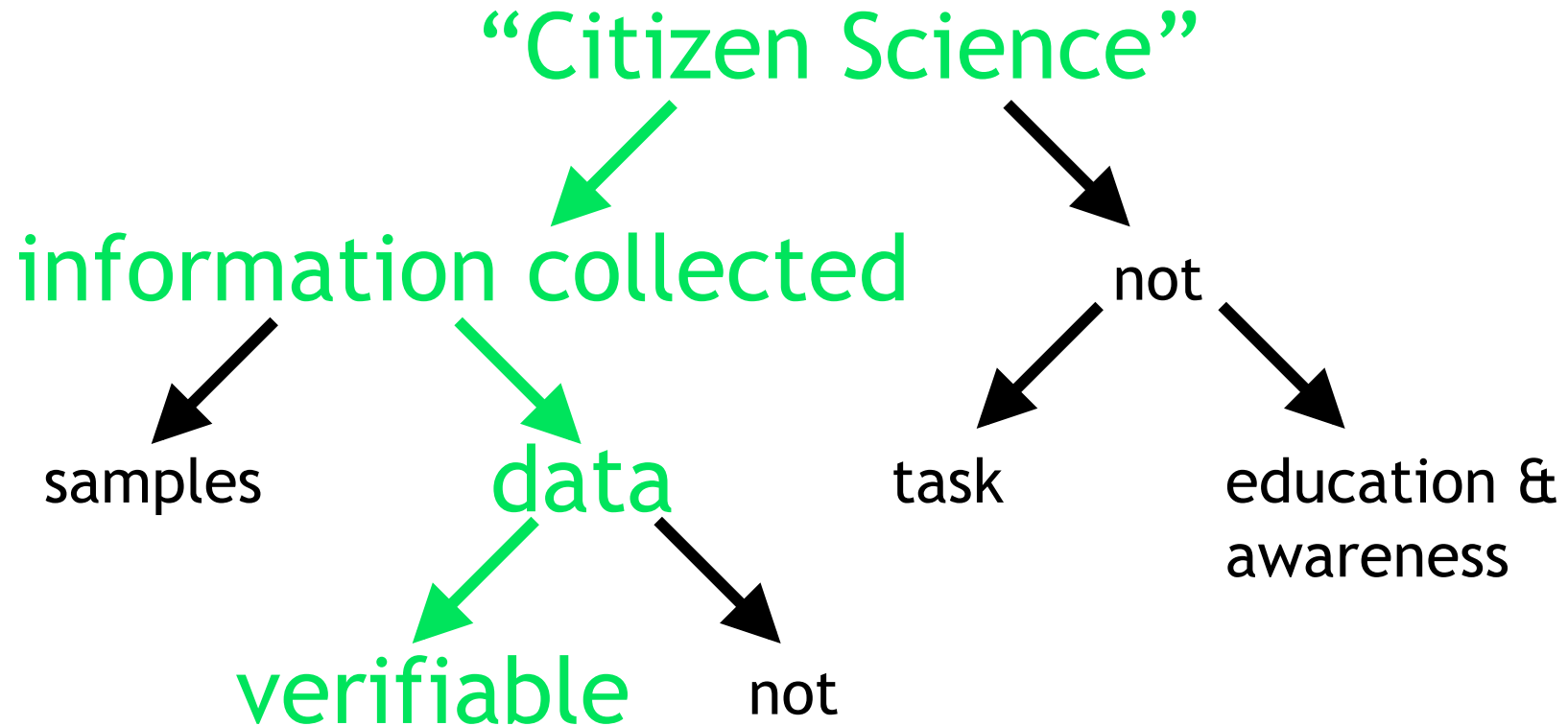
SEATTLE AQUARIUM

Project BudBurst

A National Phenology Network Field Campaign for Citizen Scientists

# “Citizen Participation”





- *is there a protocol?*
- *are data verified?*
- *does geographic and temporal scale match issue/question?*
- *are results reported? to who?*



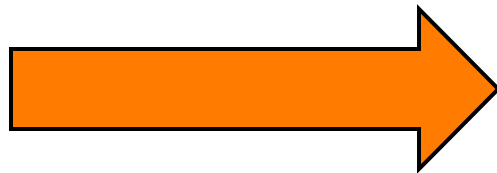
# Citizen Science

A contract between scientists and citizens to **collect**, **verify**, **analyze** and **report** out rigorous, high quality data of direct relevance to natural resource management, conservation, and environmental health and quality.

# Keys to a Successful Citizen Science Program

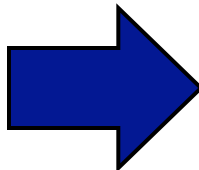
## Have a plan....

### DESIGN



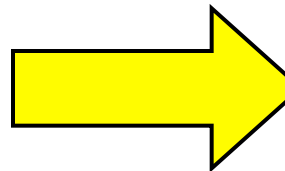
- Rigorous, standardized protocol
- Independently quantifiable

### IMPLEMENTATION

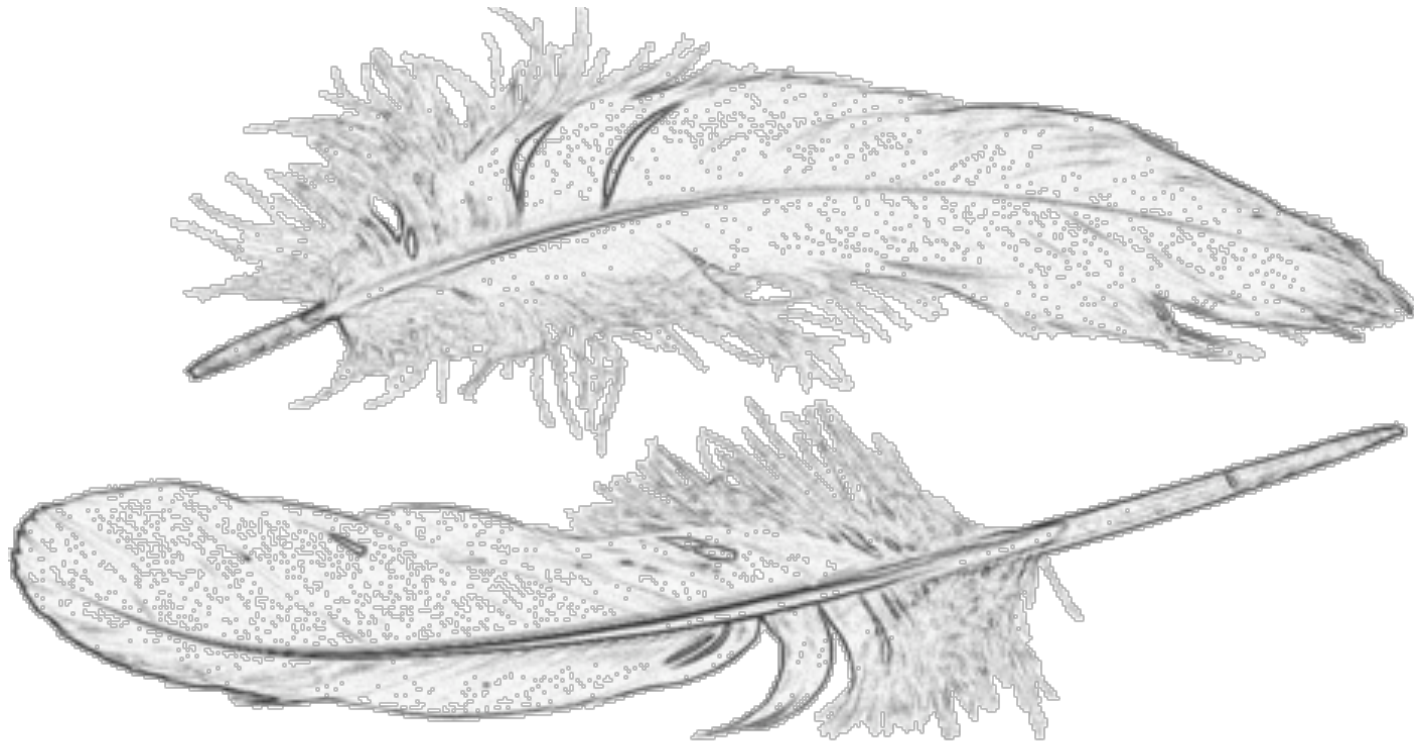


- Deductive process
- target audiences
- capitalize on local events
- Jargon free
- Manageable training
- Apolitical
- no prior knowledge required
- Focused and/or modular
- specific
- short

### MAINTENANCE



- Require commitment
- Develop networks
  - volunteers
  - data users
  - funders



( O A S T

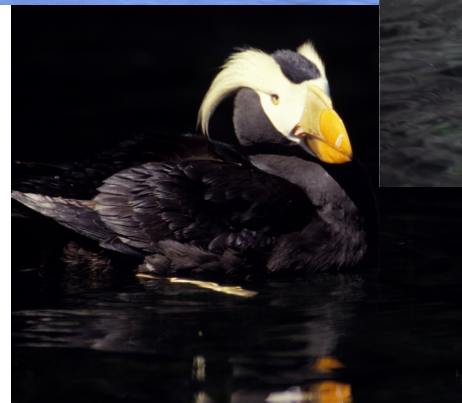
Coastal Observation and Seabird Survey Team



# Seabirds as Indicators

- More than 100 species utilize marine ecosystems in the Pacific Northwest
- Long-lived
- Upper trophic level

and people love them...



# What is COASST?

- COASST is a citizen science project of the University of Washington in partnership with state, tribal, and federal agencies, environmental organizations, and community groups.
- Volunteers survey beaches monthly in several states using beach-cast bird carcasses as environmental indicators.
- Volunteers also collect data on oiling and human use, including dogs, humans and vehicles on beaches.

***COASST Mission - empower citizens to monitor and protect coastal environmental health***

# How Does COASST Work?

- Recruit and train local citizens
- Arm them w/ rigorous protocol, field guide, datasheets



- Web-based “smart” data input
- Final verification by experts



- Data analyzed and presented



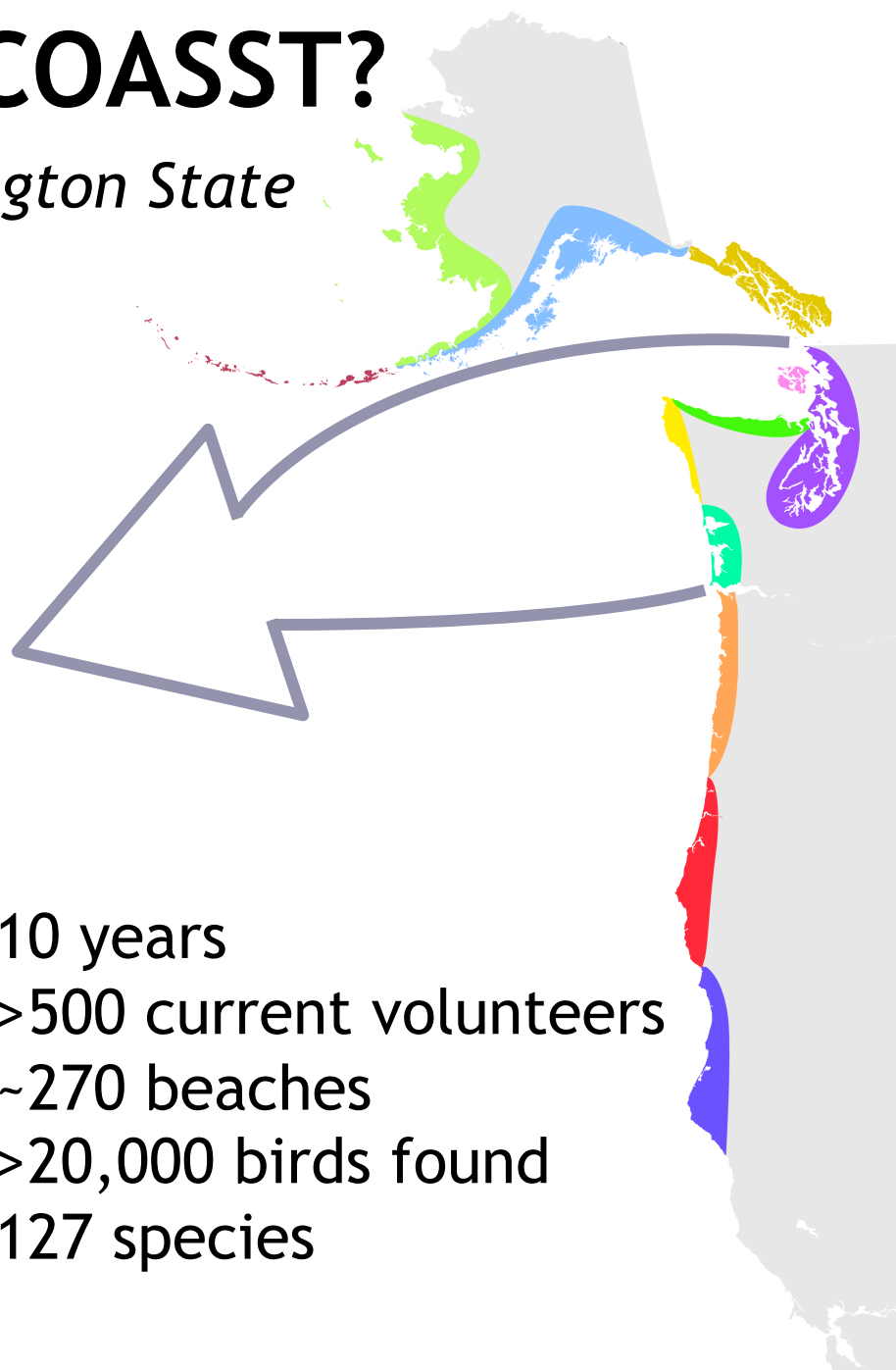


# Where is COASST?

*in Washington State*




10 years  
>500 current volunteers  
~270 beaches  
>20,000 birds found  
127 species

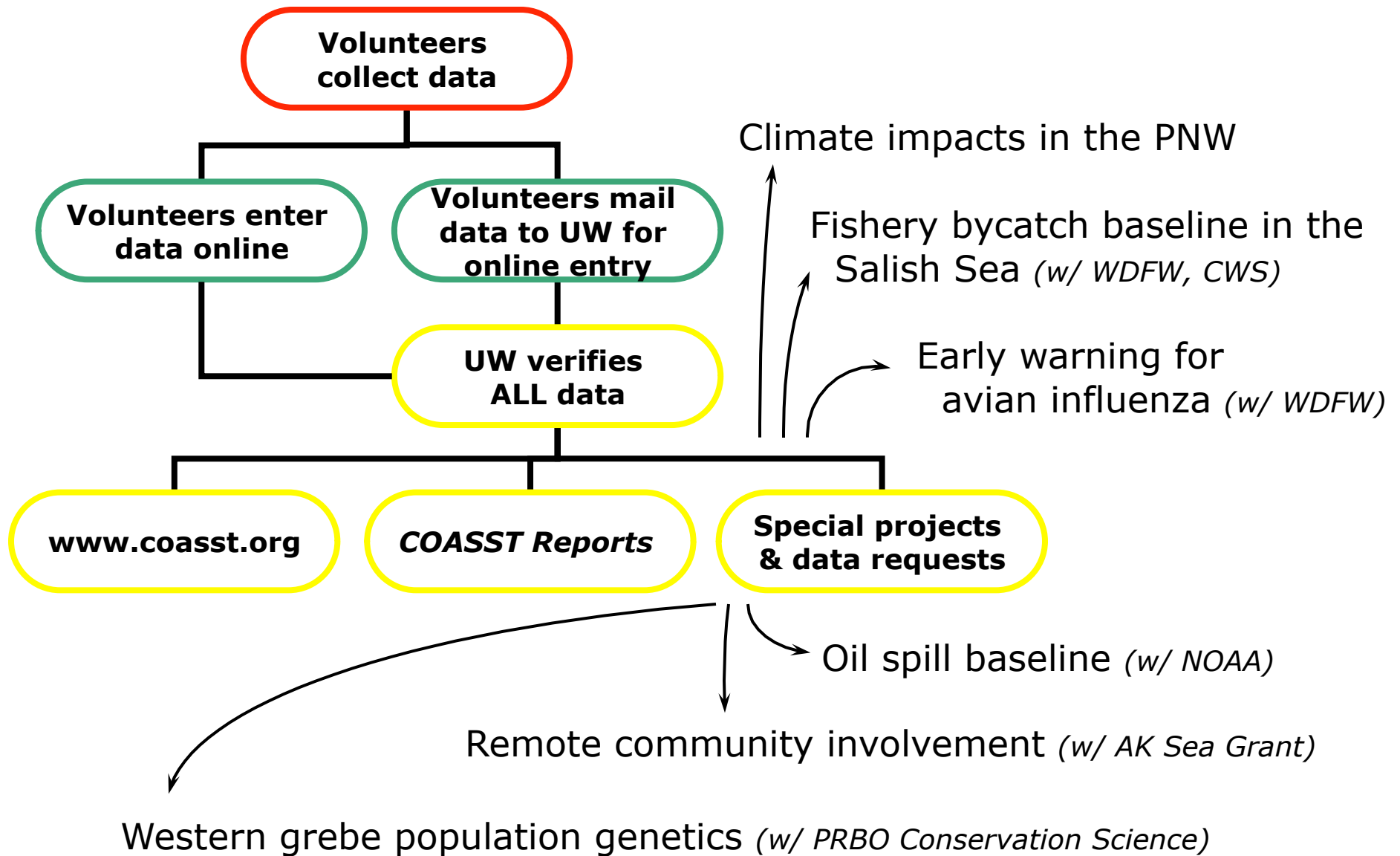


# How Accurate are COASSTers?

*Percent correct identifications*

|  | Foot-Type Family | Species |
|--|------------------|---------|
| Program-wide   | 93%              | 85%     |
| After<br>COASST  | 98%              | 92%     |

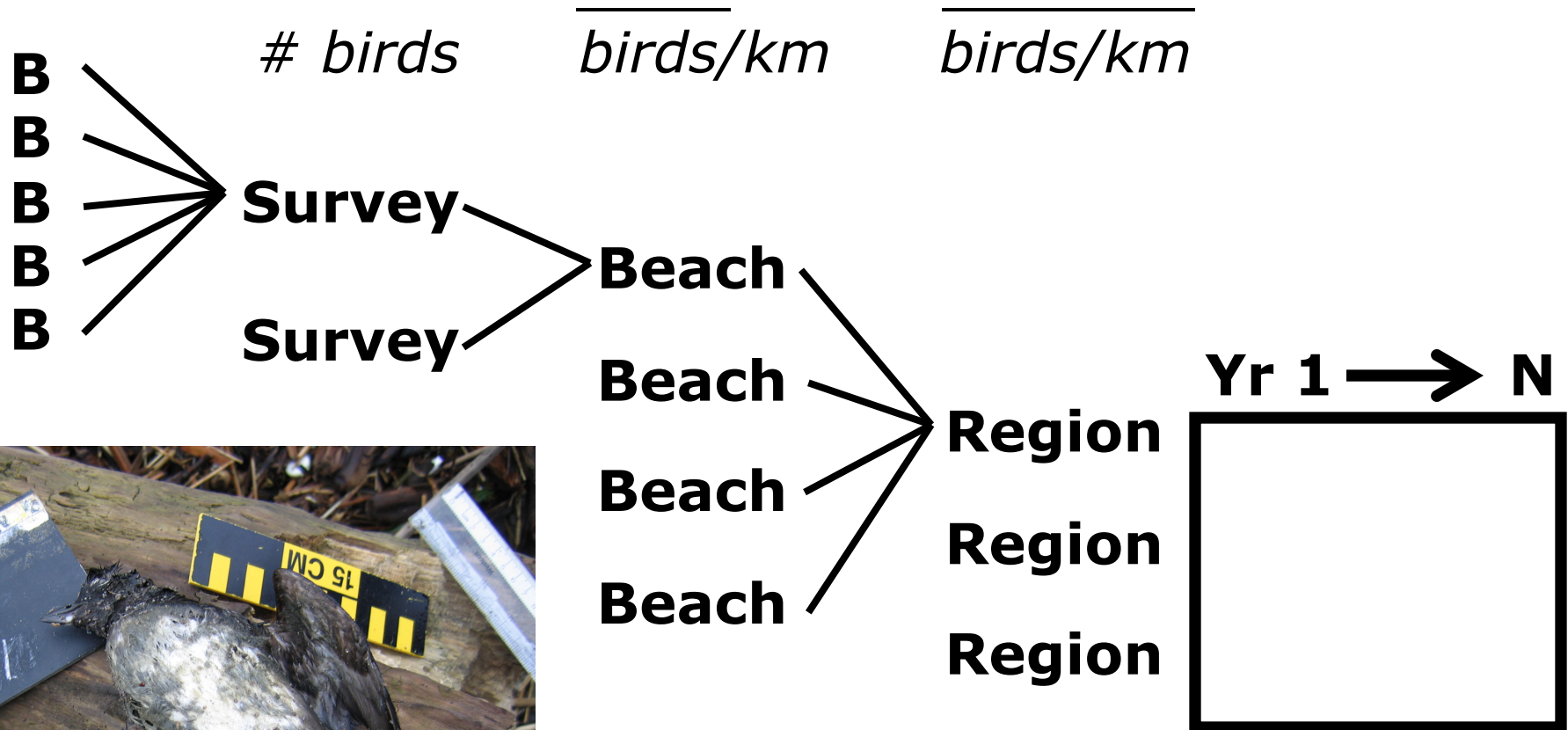
# How Does COASST Work?





# COASST Monthly Encounter Index

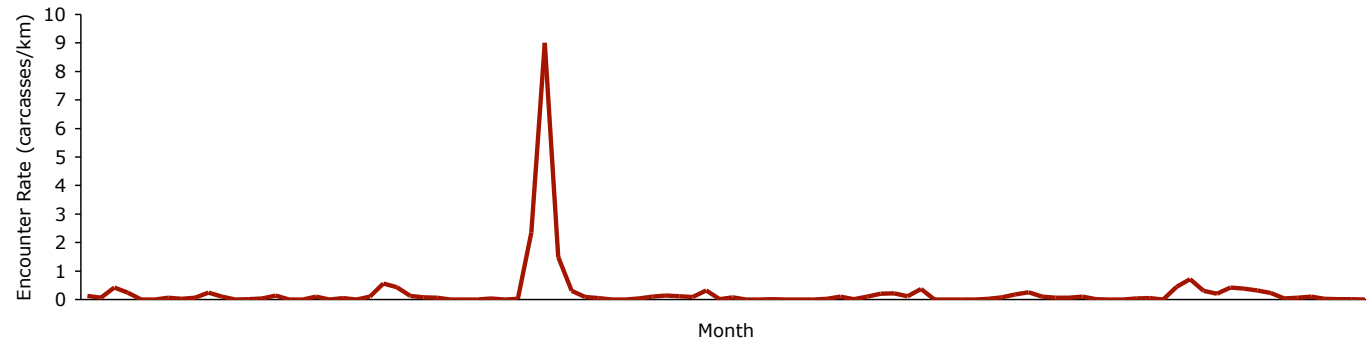
*(grossly simplified)*



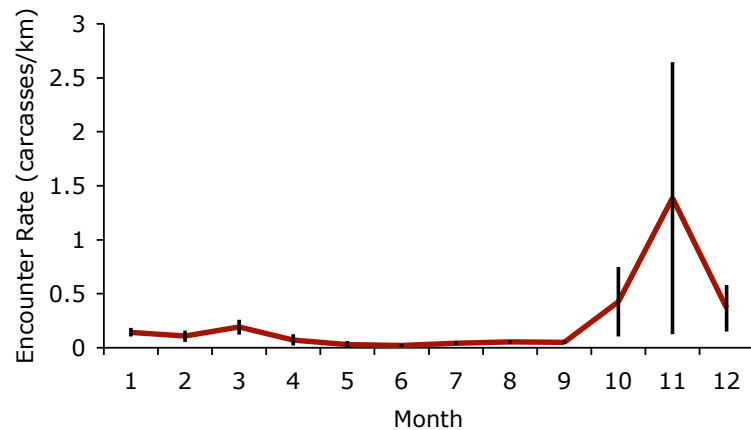


## Northern Fulmars (COASST #2)

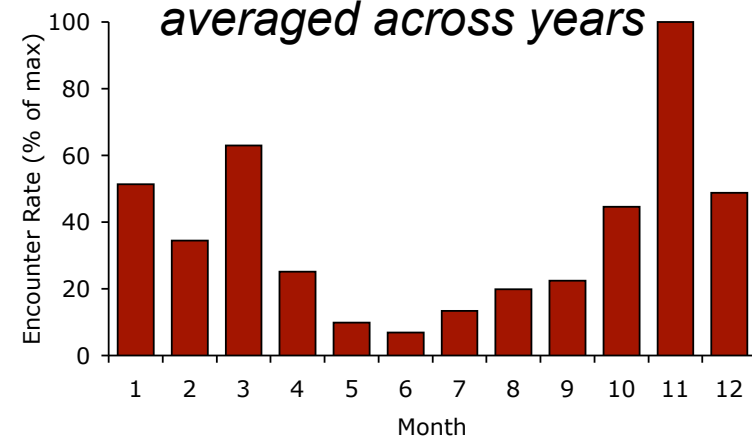
*encounter rate averaged over all beaches w/in a region each month*

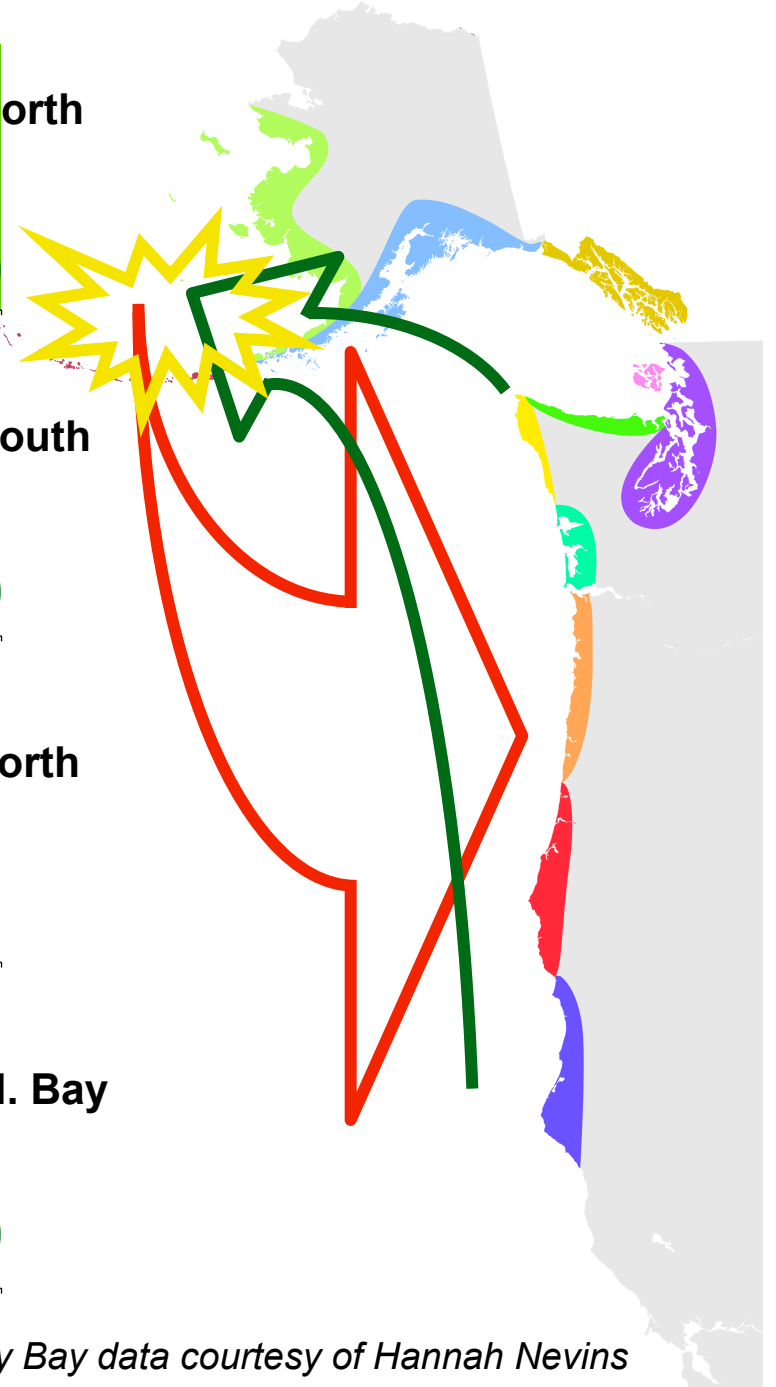
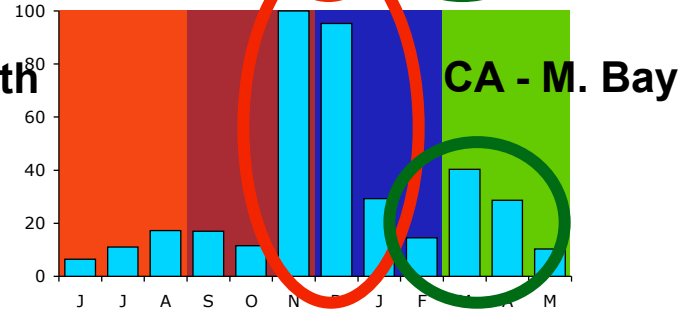
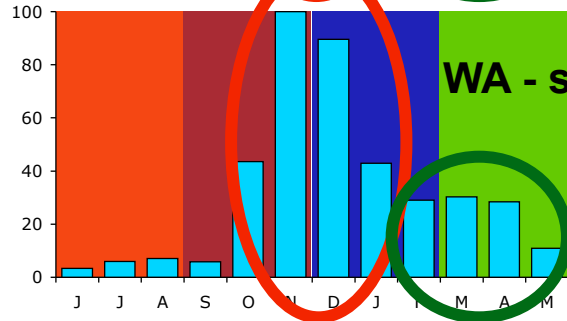
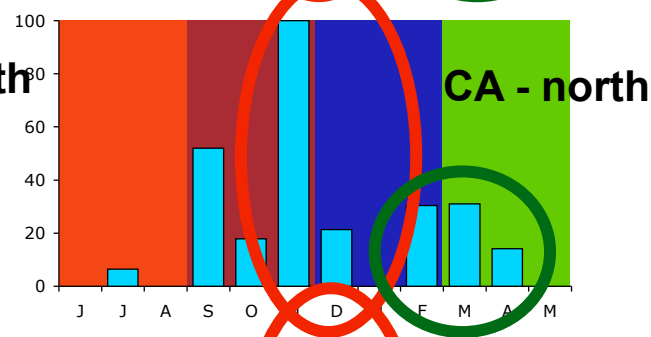
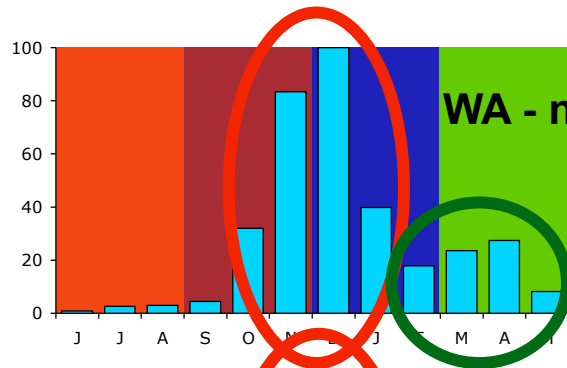
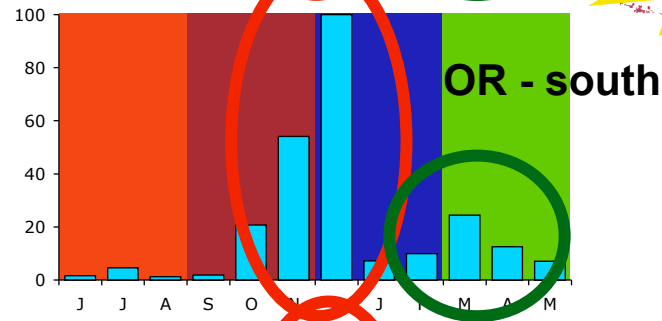
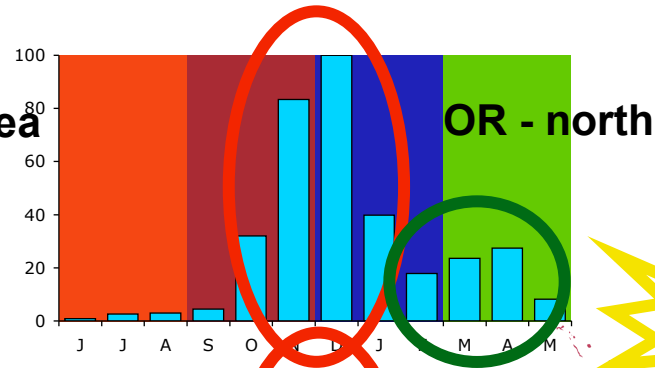
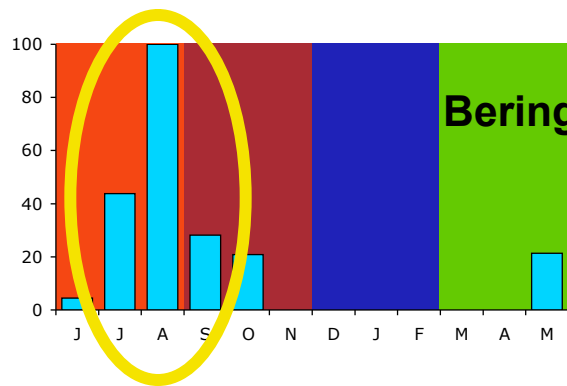


*and averaged across years*



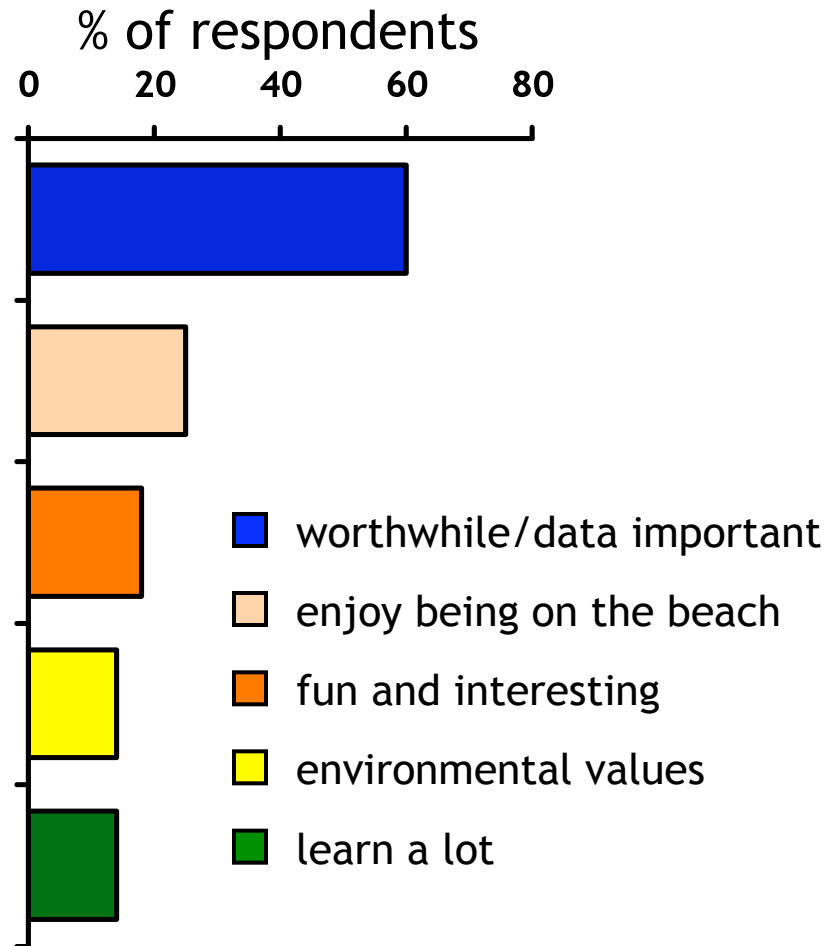
*standardized w/in year and averaged across years*





Monterey Bay data courtesy of Hannah Nevins

# Reasons They Stay



*98% of COASST volunteers are satisfied, very satisfied, or extremely satisfied with the program (volunteer survey 2004)*

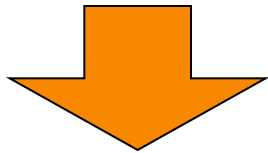


# **Citizen Science**

*and Coastal Conservation*

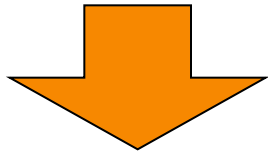
**observation**

*citizens*



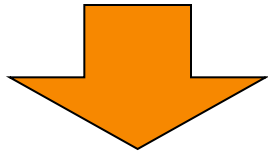
**assessment**

*scientists*



**public education**

*scientists & citizens*



**change**

*citizens*



# COASST Futures:

Facilitate creation of a network of citizen science programs - based on high quality science - which collectively monitor coastal ecosystem health in the North Pacific, providing scientists, managers, and communities with the information to affect conservation and positive change

